

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPEAL BRIEF – 37 C.F.R § 1.192

U.S. Patent Application 10/604,450 entitled:

“ISOLATED ORDERED REGIONS (IOR) NODE ORDER”

**Real Party in Interest:** International Business Machines Corporation

**Related Appeals and Interferences:**

None

**Status of Claims:**

Claims 1-20 are pending.

Claims 1-20 stand rejected under 35 USC 103(a) as being unpatentable over Lin et al. (U. S.

Patent 6491521B2) further in view of Liu et al. (U.S. Publ. Appln. 2004/0168119A1).

Claims 1-7, 9-17 and 19-20 stand rejected under 35 USC 102(e) as being anticipated by Ferrari et al. (U.S. Publ. Appln. 2003/0097357A1).

Claims 8 and 18 stand rejected under 35 USC 103(a) as being unpatentable over Ferrari et al. as applied to claims 1-7, 9-17 and 19-20 above, and further in view of Tip et al. (U.S. Publ. Appln. 2003/0018603A1).

**Claims 1-20 are hereby appealed.**

**Status of Amendments:**

No Amendment was filed after the Final Rejection dated 12/31/2007.

**Summary of Claimed Subject Matter:**

(NOTE: All citations are made from the corresponding U.S. Pre-Grant Publication US 2005/021515 A1.)

The present invention, according to **claim 1**, provides a system to order a plurality of nodes associated with entities in a document, wherein the system comprises: (a) a node generator parsing said entities in said document and creating a plurality of nodes that represent

said entities and relationships that exists among said entities (*see Figure 1, “node generator” element and paragraphs [0011] and [0035]*); (b) a node grouper grouping said created plurality of nodes into a plurality of regions, each of said regions defining an area within a n-dimensional space, wherein n is greater than one (*see Figure 1, “node grouper” element and paragraphs [0011] and [0035]*); and (c) a formatter for formatting said plurality of regions for storage (*see Figure 1, “formatter” element and paragraphs [0011] and [0035]*).

In addition to the features of claim 1, **claim 2** teaches that the regions in claim 1 are node descendant regions (*see Figure 17 and paragraphs [0032] and [0077]*).

In addition to the features of claim 1, **claim 3** teaches that the formatted regions are stored in one or more pages (*see Figure 3a-3c, 4a-4b and paragraphs [0017], [0035] and [0037]*).

In addition to the features of claim 1, **claim 4** teaches that the set of regions are grouped by said node grouper based upon anticipated access pattern and usage (*see paragraphs [0035] and [0046]*).

In addition to the features of claim 1, **claim 5** teaches that the node grouper additionally monitors insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region (*see Figure 16d-16f and paragraphs [0012], [0034], [0061], [0063] and [0076]*).

In addition to the features of claim 1, **claim 6** teaches that the document is a mark-up language based document (*see paragraphs [0035] and [0036]*).

In addition to the features of claims 1 and 6, **claim 7** teaches that the mark-up language based document is an XML document (*see paragraphs [0035] and [0036]*).

In addition to the features of claim 1, **claim 8** teaches that the system associates post order traversal numbers with said plurality of nodes, said post order traversal numbers identifying containment relationships among nodes (*see paragraphs [0064] through [0073]*).

In addition to the features of claim 1, **claim 9** teaches that the system is implemented across networks (*see paragraph [0082]*).

In addition to the features of claims 1 and 9, **claim 10** teaches the network being any of the following: local area network, wide area network, or the Internet (*see paragraph [0082]*).

The present invention, according to **claim 11**, provides a method for ordering a plurality of nodes associated with entities in a document, said method comprising: (a) parsing said entities in said document and creating a plurality of nodes that represent said entities and relationships that exists among said entities (*see Figure 1, “node generator” element and paragraphs [0011], [0013] and [0035]*); (b) grouping said created plurality of nodes into a plurality of regions, each of said regions defining an area within a n-dimensional space, wherein n is greater than one (*see Figure 1, “node grouper” element and paragraphs [0011], [0013] and*

[0035]); and (c) formatting said plurality of regions for storage (*see Figure 1, “formatter” element and paragraphs [0011], [0013] and [0035]*).

In addition to the features of claim 11, **claim 12** teaches that the regions of claim 11 are node descendant regions (*see Figure 17 and paragraphs [0032] and [0077]*).

In addition to the features of claim 11, **claim 13** teaches that the formatted regions are stored in one or more pages (*see Figure 3a-3c, 4a-4b and paragraphs [0017], [0035] and [0037]*).

In addition to the features of claim 11, **claim 14** teaches that the set of regions are grouped based upon anticipated access pattern and usage (*see paragraphs [0035] and [0046]*).

In addition to the features of claim 11, **claim 15** teaches that the method comprises the additional step of monitoring the insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region (*see Figure 16d-16f and paragraphs [0012], [0034], [0061], [0063] and [0076]*).

In addition to the features of claim 11, **claim 16** teaches that the document is a mark-up language based document (*see paragraphs [0035] and [0036]*).

In addition to the features of claims 11 and 16, **claim 17** teaches that the mark-up language based document is an XML document (*see paragraphs [0035] and [0036]*).

In addition to the features of claim 11, **claim 18** teaches that the post order traversal numbers are associated with said plurality of nodes, said post order traversal numbers identifying containment relationships among nodes (*see paragraphs [0064] through [0073]*).

In addition to the features of claim 11, **claim 19** teaches that the method is implemented across networks (*see paragraph [0082]*).

In addition to the features of claims 11 and 19, **claim 20** teaches that the network is any of the following: local area network, wide area network, or the Internet (*see paragraph [0082]*).

**Grounds of Rejection to be Reviewed on Appeal:**

1. **With respect to claims 1-7, 9-17, and 19-20, was a proper rejection made under 35 U.S.C. §102(e) using existing USPTO guidelines?**
2. **With respect to claims 8 and 18, was a proper rejection made under 35 U.S.C. §103(a) using existing USPTO guidelines?**
3. **With respect to claims 1-20, was a proper rejection made under 35 U.S.C. §103(a) using existing USPTO guidelines?**

**ARGUMENT:**

1. **With respect to claims 1-7, 9-17, and 19-20, was a proper rejection made under 35 U.S.C. §102(e) using existing USPTO guidelines?**

Claims 1-7, 9-17 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ferrari et al. (U.S. 2003/0097357), hereafter Ferrari. The Manual for Patenting Examining Procedure (MPEP) §2131 clearly sets forth the standard for rejecting a claim under 35 U.S.C. §102(e). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” (MPEP § 2131, quoting Verdegaal Bros. v. Union Oil Co. of California 2 USPQ2d 1051, 1053 (Fed Cir. 1987)). Applicant respectfully asserts, and as will be shown in the arguments below, that the cited art fails (i.e., Ferrari) to teach the claimed invention as required by the MPEP.

With respect to Applicants’ pending independent claim 1, the Examiner erroneously contends that “Ferrari teaches the node generator in figures 14A, B and C where information of a document is converted into ordered nodes (attributes and values) in a tree structure according to relationships amongst them”. Figures 14A through 14C are reproduced below:

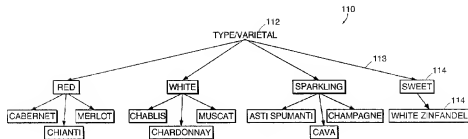


FIG. 14A



FIG. 14B

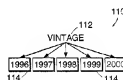


FIG. 14C

The Examiner appears to erroneously conclude that elements 112 and 114 can be equated to “nodes”. By Ferrari’s own admission in paragraphs 96 and 97, elements 112 and 114 are NOT nodes, but merely correspond to “attributes” and “values”, respectively, of a “taxonomy definition process”. In paragraph 90 Ferrari further clarifies that “taxonomy definition is the process of identifying the relevant attributes to characterize documents” and “classification is the process of associating terms with documents” (emphasis added).

The Examiner also appears to erroneously conclude that elements 112 and 114 are created when “information of a document is converted into ordered nodes.” However, Ferrari, in paragraph 91, contradicts the Examiner by clarifying that the structure shown in Figures 14A-C is formed as a result of the above-mentioned “taxonomy definition process” wherein “collections of documents are arranged into domains, and NOT formed, as the Examiner asserts, by converting a document into ordered nodes. In



other words, the taxonomy of attributes/values is created based on data obtained from collections of documents, and NOT based on “parsing said entities in said document”. Ferrari further clarifies in paragraph 100 that the data is acquired from a “collection of documents” in a database and the “collected documents are formatted and parsed to facilitate further processing.” Further in the same paragraph, Ferrari states that the “formatted and parsed documents are processed in order to automatically associate documents with terms.” Applicants assert that Ferrari merely teaches associating a collection of documents with terms in a pre-existing hierarchy, which is **NOT** the same as parsing entities in a document and creating a plurality of nodes that represent entities and relationships that exists among said entities. Hence, Applicants respectfully assert that the Ferrari reference fails to teach or suggest the features of pending independent claim 1.

With respect to Applicants’ pending independent claim 1, the Examiner erroneously contends that “Ferrari teaches the grouping of nodes in Figure 17 where the information of a document is grouped into nodes according to attributes and values”. Ferrari’s Figure 17 is reproduced below:

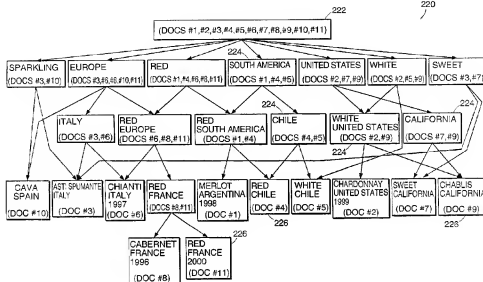


FIG. 17

Applicants wish to emphasize that Applicants' "node grouper" feature groups the created plurality of nodes (created from parsing a document) into a plurality of regions, with each region defining an area within an n-dimensional space with  $n > 1$ .

By contrast, Ferrari in figure 17 above merely re-emphasizes how a "collection of documents" (see element 222 which specifically mentions a collection of documents - DOCS #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, and #11) are associated with various attributes. For example, in figure 17 "DOCS #1, #4" are associated with the attribute "RED SOUTH AMERICA" and "DOC #4" is associated with the attribute "RED CHILE". It is clear that elements of Ferrari's figure 17 represent attributes that are associated with a plurality of documents in a collection and NOT nodes representing entities in one document. Further, there is no teaching in Ferrari's figure 17 for grouping nodes, as by Ferrari's own admission it groups documents NOT nodes representing entities in a document.

It should be emphasized that by the Examiner's own admission on page 10 of the previous Office Action dated 06/11/2007, Ferrari's paragraphs 91 and 103 merely disclose natural grouping of documents into domains and grouping of sub-collection of documents stored together to be retrieved at one time **NOT grouping of nodes representing entities in one document.**

Furthermore, paragraph 0258 of Ferrari merely teaches how master and slave servers are used to provide search and navigation results to a user, wherein a collection of materials is partitioned among multiple slave servers. **The term "multidimensional" in paragraph 0258 of the Ferrari et al. reference is used with respect to navigation of materials; whereas applicants' pending independent claim 1 uses the term "n-dimensional" with respect to regions and areas that are created by grouping nodes of a document.** Hence, Applicants respectfully assert that the Ferrari reference fails to teach or suggest the features of pending independent claim 1.

With respect to Applicants' pending independent claim 1, the Examiner further contends that "Ferrari teaches the formatting of materials and documents within the knowledge base". Applicants respectfully assert that Applicants' **formatter does NOT format "materials and documents", as the Examiner asserts, but formats a "plurality of regions for storage"** where each of the regions corresponds to a grouping of nodes in an n-dimensional space. Furthermore, the Examiner contends that "the classification and value formats associate the items in the collection as disclosed in paragraph 21". The Examiner appears to erroneously conclude that the "Attribute:Value format" can be equated to Applicants' formatter of claim 1. By Ferrari's own admission in paragraph 90

“taxonomy definition” is the process of identifying the relevant attributes to characterize documents, determining the acceptable values of those attributes, and defining partial order among terms (attribute-value pairs) and “classification” is the process of associating terms (attribute-value pairs) with documents. The attribute-value pairs in the Ferrari reference are used for the purpose of classifying documents and these attribute-value pairs are represented in “Attribute:Value format”, for example, Products:Movies and Director:Spike Lee. The “Attribute:Value format” of the Ferrari reference is NOT the same as the “formatter” of Applicants’ pending independent claim 1, which formats plurality of regions of a document for storage. Paragraph 103, which the Examiner cites as support in the Response to Arguments section, merely recites a knowledge base of a store having a collection of documents and makes no mention of formatting plurality of regions for storage. Hence, Applicants respectfully assert that the Ferrari reference fails to teach or suggest the features of pending independent claim 1.

Based on the arguments provided above, Applicants contend that the Ferrari reference fails to provide for many of the features of Applicants’ pending independent claim 1. Hence, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to independent claim 1.

Independent claim 11 of Applicants’ pending claims provides for similar features as independent claim 1. Therefore, the arguments provided above with respect to claim 1 apply to the features of independent claim 11 and Applicants contend that the Ferrari reference fails to provide for many of the features of Applicants’ pending independent claim 11.

Therefore, based on the arguments provided above, Applicants contend that the Ferrari reference fails to provide for many of the features of Applicants' pending independent claim 11. Hence, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to independent claim 11.

With respect to Applicants dependent claims 2 and 12, the Examiner contends that paragraphs 61-62 and 146-147 of Ferrari teach Applicants' feature of regions defining an area within an n-dimensional space being node descendant regions (regions defining an area containing nodes that are descendents of a particular node). As was explained in detail above, Ferrari fails to teach such regions and cannot, therefore, teach or suggest the feature of Applicants' claims 2 and 12.

Thus, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 2 and 12. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 2 and 12.

With respect to Applicants dependent claims 3 and 13, the Examiner contends that paragraph 103 of Ferrari teaches Applicants' feature of the **formatted regions being stored in one or more pages of memory**. Paragraph 103, as previously mentioned, merely recites a knowledge base of a store having a collection of documents. Such a knowledge base CANNOT be equated to the features of Applicants' claims 3 and 13, which specifically recite storing, in pages of memory, formatted regions containing a

grouping of nodes, with each of the regions defining an area within an n-dimensional space.

Hence, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 3 and 13. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 3 and 13.

With respect to Applicants dependent claims 4 and 14, the Examiner contends that paragraph 103 of Ferrari teaches Applicants' feature of **a set of regions being grouped based upon anticipated access pattern and usage**. Paragraph 103, as previously mentioned, merely recites a knowledge base of a store having a collection of documents. Applicants respectfully submit to the Board of Patent Appeals and Interferences that **such a knowledge base does not teach regions of nodes being grouped based upon anticipated access pattern and usage**.

Hence, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 4 and 14. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 4 and 14.

With respect to Applicants dependent claims 5 and 15, the Examiner contends that paragraph 156 of Ferrari teaches Applicants' feature of the node grouper **additionally monitors insertion or deletion of nodes in each of said regions**, whereby modifications

to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based on a parent level region. Paragraph 156 of Ferrari merely teaches the insertion of nodes in Figure 17 (which was previously discussed), wherein the node represents a document and NOT elements within a document. In fact, Applicants maintain that the **Ferrari reference neither teaches nor suggests the addition or deletion of nodes in regions nor does it teach or suggest the creation of nesting levels based on an addition or deletion of nodes.**

Hence, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 5 and 15. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 5 and 15.

With respect to Applicants dependent claims 6-7 and 16-17, the Examiner contends that paragraph 88 of Ferrari teaches Applicants' feature of the document being a mark-up language document or an XML document. Paragraph 88 merely references a search and navigation interface which may be implemented as an XML-based application. However, Applicants wish to emphasize that **such an XML based application fails to teach or suggest a mark-up language document or an XML document that is parsed to create a plurality of nodes, wherein the nodes are grouped into regions (each region defining an area within a n-dimensional space) and the grouped regions are formatted for storage.**

Hence, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 6-7 and 16-17. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 6-7 and 16-17.

With respect to Applicants dependent claims 9-10 and 19-20, the Examiner contends that paragraph 88 of Ferrari teaches Applicants' system and method being implemented across networks such as a local area network, wide area network, or the Internet. Paragraph 88, as stated above, merely references a search and navigation interface which may be implemented as an XML-based application. Such a mere disclosure of an XML-based application cannot teach or suggest the above-described method and system being implemented across networks such as a local area network, wide area network, or the Internet.

Hence, Applicants respectfully assert that Ferrari CANNOT teach or suggest many of the features of dependent claims 9-10 and 19-20. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §102(e) rejection with respect to dependent claims 9-10 and 19-20.



2. **With respect to claims 8 and 18, was a proper rejection made under 35 U.S.C.**

**§103(a) using existing USPTO guidelines?**

Claims 8 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ferrari et al. (U.S. 2003/0097357), hereafter Ferrari, as applied to claims 1-7, 9-17, and 19-20 above, and further in view of Tip et al. (U.S. 2003/0018603), hereafter Tip. To be properly rejected under 35 U.S.C. §103(a), the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Claims 8 and 18 of the applicants' pending claims depend from independent claims 1 and 11. Hence, the above-mentioned arguments with respect to independent claims 1 and 11, substantially apply to dependent claims 8 and 18 as they inherit all the limitations of the claim from which they depend. Therefore, applicants respectfully assert that pending dependent claims 8 and 18 are allowable.

Applicants wish to note, however, that the Ferrari reference would not have been properly combined with the Tip reference by one of ordinary skill in the art, as there would have been no teaching, suggestion, or motivation for allowing such a combination. Specifically, the Ferrari reference relates to the field of information search and navigation systems, whereas, the Tip reference relates to the field of object-oriented programming and merely teaches a method of programming instructions to construct a call graph. They are NOT in the same field of hierarchical data structure as the Examiner asserts. Applicants respectfully contend that one of ordinary skill in the art would not have been

able to combine specific features of Ferrari with features of Tip without a teaching, suggestion or motivation.

Furthermore, paragraph 0114 of the Tip reference, merely teaches associating integers with each class (well known in the art of object-oriented programming) corresponding to a post-order traversal of the class hierarchy. There is NO mention in the citation or the Tip reference in its entirety of associating post-order traversal numbers with a plurality of nodes, wherein these nodes are created by parsing entities of a document, a feature of Applicants' pending claims.

The Tip reference in view of Ferrari reference by themselves or in their entirety fail to provide for: i) parsing entities in a document and creating a plurality of nodes that represent the entities and relationships that exists among the entities; ii) grouping the created plurality of nodes into a plurality of regions, each of the regions defining an area within a n-dimensional space, wherein n is greater than one; and iii) formatting the plurality of regions for storage.

Furthermore, Applicants assert that since the primary reference, Ferrari, fails to teach the features of independent claims 1 and 11, it would be moot to argue that the combination of Ferrari and Tip teaches the features of dependent claims 8 and 18.

Additionally, with respect to Applicants dependent claims 8 and 18, the Examiner contends that paragraphs 111 and 114 of Tip teaches Applicants' feature of associating post order traversal numbers with the plurality of nodes, wherein the post order traversal

numbers identifying containment relationships among nodes. The Examiner's citation of paragraphs 111 and 114 merely reference **JAVA algorithms for constructing call graphs** and further reference post order traversal of class hierarchy in JAVA but makes no mention of nodes or associating post order traversal numbers with nodes, wherein the post order traversal numbers identifying containment relationships among nodes.

Hence, Applicants respectfully assert that the combination of Ferrari and Tip CANNOT teach or suggest many of the features of dependent claims 8 and 18. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 8 and 18.

3. **With respect to claims 1-20, was a proper rejection made under 35 U.S. C. § 103(a) using existing USPTO guidelines?**

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,941,521), hereafter Lin, further in view of Liu et al. (US 2004/0168119), hereafter Liu. To be properly rejected under 35 U.S.C. 103(a), the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The presently claimed invention, in independent claim 1, provides for a system to order a plurality of nodes associated with entities in a document, said system comprising: (a) a **node generator parsing entities in a document and creating a plurality of nodes that represent the entities and relationships that exists among the entities**; (b) a **node grouper grouping the created plurality of nodes into a plurality of regions, each of the regions defining an area within a n-dimensional space, wherein n is greater than one**; and (c) a **formatter for formatting the plurality of regions for storage**.

With respect to claim 1, the Examiner erroneously argues that Figure 1 and column 3, lines 63-67 and column 4, lines 20-42 of Lin teach claim 1's feature of **a node generator parsing entities in a document and creating a plurality of nodes that represent said entities and relationships that exists among said entities**. Figure 1 of Lin, by Lin's own admission, is **"a high-level flowchart illustrating a process for generating a graphical user interface (GUI)"** (see, for example, column 1, lines 63-65 and column 2, lines 53-67). Also, column 3, lines 63-67 and column 4, lines 20-42 of Lin merely teach a method

for the conversion of an XML file to a DOM tree. Applicants respectfully submit that the Examiner erred in equating Lin's feature of generation of a GUI to Applicants' feature of parsing entities in a document to create a plurality of nodes that represent said entities and relationships that exists among said entities.

Further, with respect to claim 1, the Examiner erroneously argues that Lin's Figure 4 and column 5, lines 19-40 teach the feature of a node grouper grouping the created plurality of nodes into a plurality of regions, wherein each of the regions define an area within an n-dimensional space, wherein n is greater than one. Lin's Figure 4 merely illustrates a flow chart for creating an "intermediate data structure". Further, the Examiner's citation of Lin's column 5, lines 19-40 is provided below:

"For each object, a decision is made in a decision block 210 to whether that object corresponds to a group, a table, an address, a modifier, or a text field. *Under DOM, group objects correspond to parent nodes having one or more child nodes, each of which are connected to the parent object's branch with a respective branch.* For example, a branch 139 extending downward from a node corresponding to PurchaseOrder group object 128a is connected to branches 141, 142, 143, 144, and 145, which in turn are connected to respective nodes corresponding to PhysicalAddress group object 130a, a comment text field object 146a, and ProductLineItem group objects 131a,

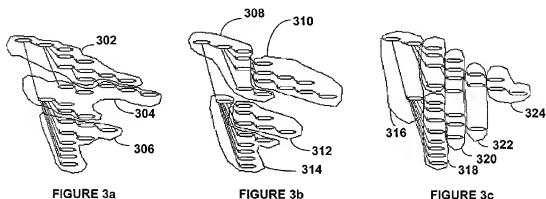
*132o and 133o*. Branch 141 is further connected to a branch 149, which in turn is connected to a plurality of leaf nodes 150, each corresponding to a respective text field object. Text field objects, which represent the lowest level of hierarchy for a given branch, may further contain one or more modifier objects. In one embodiment, modifier objects include a FreeFormText modifier 151. In general, the modifier objects are used for data validation purposes, and are outside the scope of the invention. Modifier objects are not used for dynamic GUI generation, and are thus ignored when encountered, as discussed below.” (emphasis added).

To better understand the meaning of the Examiner’s citation of group objects, the Board of Patent Appeals and Interferences is respectfully requested to review Lin’s Figure 2B. Under DOM, as the above-mentioned citation from Lin recites, a group object refers to a parent node having one or more child nodes. Specifically, in Lin’s Fig. 2B, the group object called “PurchaseOrder” is connected to:

- (1) the PhysicalAddress node 130o via branch 141,
- (2) the comment node 146o via branch 142,
- (3) the ProductLineItem node 131o via 143,
- (4) the Product Line Item node 132o via branch 144, and
- (5) the Product Line Item node 133o via branch 145.

DOM’s group objects, therefore, merely refer to a parent node with any children.

By stark contrast, the present invention's claim 1 explicitly recites **the grouping of a plurality of nodes into a plurality of regions, wherein each of the regions define an area within an n-dimensional space, wherein  $n > 1$** . To better understand the meaning of this statement, the Board of Patent Appeals and Interferences is respectfully requested to review Applicants' Figures 3a through 3c as filed, a copy of which has been reproduced below:



The examples in Figures 3a-3c of Applicants' disclosure illustrate differing sets of regions formed based on different grouping in a 2-dimensional space. For example, Figure 3a illustrates three regions 302, 304, and 306 formed by grouping the nodes in a first manner. Figure 3b illustrates four regions 308, 310, 312, and 314 formed by grouping the same nodes in a second manner. Figure 3c illustrates four regions 316, 318, 320, 322, and 324 formed by grouping the same nodes in a third manner. In all examples, **each of the regions contains a grouping of nodes and each region defines an area within the 2-dimensional space containing the nodes.**

As can be seen, **Lin's group object, which merely refers to DOM's group object, does NOT refer to a region containing a grouping of nodes wherein each region defines**

**an area in an n-dimensional space.**

Further, with respect to claim 1, the Examiner erroneously argues that Liu's paragraphs 52-53 and 57 teach Applicants' feature of **formatting the plurality of regions for storage.** It is important to note that **the regions formatted for storage in Applicants claims and disclosure refer to the regions containing the grouping of nodes and regions defining an area in an n-dimensional space.** Applicants respectfully assert that Liu merely teaches **formatting of reports** and the formatter 218 of Liu is merely a **report formatter for the creation of an expanded report** and provides **no teaching or suggestion for forming regions containing grouping of nodes within an n-dimensional space, whereby the regions are formatted for storage.**

Applicants assert that even if the teachings of Lin were to be combined with the teachings of Liu, **one of ordinary skill in the art would merely develop an implementation that would dynamically generate a graphical user interface from XML documents wherein the implementation would additionally have the feature of automatically creating and formatting a report.** Such a teaching cannot teach or suggest the above-described features of Applicants' claim 1.

Absent such features, Applicants maintain that the combination of Lin and Liu CANNOT teach or suggest the features of Applicants' claim 1. Hence, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to independent claim 1.



The present invention, in independent claim 11, provides for a method for ordering a plurality of nodes associated with entities in a document, said method comprising:

- (a) parsing said entities in said document and creating a plurality of nodes that represent said entities and relationships that exists among said entities; (b) grouping said created plurality of nodes into a plurality of regions, each of said regions defining an area within a n-dimensional space, wherein n is greater than one; and (c) formatting said plurality of regions for storage.

With respect to the rejection of independent claim 11, the Examiner uses the same citations as used in claim 1. Hence, the above-mentioned arguments substantially apply to independent claim 11. Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of independent claim 11. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to independent claim 11.

With respect to Applicants dependent claims 2 and 12, the Examiner contends that Figure 2a and column 4, lines 5-32 of Lin teach Applicants' feature of regions defining an area within an n-dimensional space being node descendant regions (regions defining an area containing nodes that are descendents of a particular node). As was explained in detail above, Lin fails to teach such regions and cannot, therefore, teach or suggest the feature of Applicants' claims 2 and 12.

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 2 and 12. Therefore,

Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 2 and 12.

With respect to Applicants dependent claims 3 and 13, the Examiner contends that column 14, lines 12-24 of Lin teaches Applicants' feature of the **formatted regions being stored in one or more pages of memory**. Column 14, lines 12-24 merely recites that the instructions for implementing Lin's method can be stored in storage (such as CD-ROM disk, DVD disk, RAM, etc.). Such a mere mention of **articles of manufacture items storing code** CANNOT be equated to the features of Applicants' claims 3 and 13, which specifically recite storing, in pages of memory, formatted regions containing a grouping of nodes, with each of the regions defining an area within an n-dimensional space.

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 3 and 13. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 3 and 13.

With respect to Applicants dependent claims 4 and 14, the Examiner contends that Figure 4 and column 5, lines 19-40 of Lin teach Applicants' feature of **a set of regions being grouped based upon anticipated access pattern and usage**. As discussed previously, column 5, lines 19-40 of Lin merely teach DOM's group objects corresponding to a parent nodes with one or more child nodes. The parent and the child nodes are merely collectively referred to as the group object. Applicants respectfully submit to the Board

of Patent Appeals and Interferences that **such group objects are not grouped based upon anticipated access pattern and usage.**

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 4 and 14. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 4 and 14.

With respect to Applicants dependent claims 5 and 15, the Examiner contends that column 7, lines 15-39 of Lin teaches Applicants' feature of the node grouper **additionally monitors insertion or deletion of nodes in each of said regions**, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based on a parent level region. Column 7, lines 15-39 merely references "**modifier objects**" and how such "modifier objects" are handled by Lin's method. Such "modifier objects" by no means teach or suggest the specific feature of monitoring the insertion or deletion of nodes in one or more regions. In fact, Applicants maintain that the **Lin reference neither teaches or suggests the addition or deletion of nodes, nor does it teach or suggest the creation of nesting levels based on an addition or deletion of nodes.** The Examiner clearly has not pointed to any citation in Lin that teaches either of these features.

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 5 and 15. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a)

rejection with respect to dependent claims 5 and 15.

With respect to Applicants dependent claims 6-7 and 16-17, the Examiner contends that column 3, lines 41-53 of Lin teaches Applicants' feature of the document being a mark-up language document or an XML document. However, Applicants wish to emphasize that **Lin fails to teach or suggest a mark-up language document or an XML document that is parsed to create a plurality of nodes, wherein the nodes are grouped into regions (each region defining an area within a n-dimensional space) and the grouped regions are formatted for storage.**

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 6-7 and 16-17. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 6-7 and 16-17.

With respect to Applicants dependent claims 8 and 18, the Examiner contends that paragraph 74 of Liu teaches Applicants' feature of associating post order traversal numbers with the plurality of nodes, wherein the post order traversal numbers identifying containment relationships among nodes. The Examiner's citation merely references a **pre-order tree traversal in a structured report and makes no mention of associating post order traversal numbers to a plurality of nodes for the purpose of identifying containment relationship among nodes.**

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT

teach or suggest many of the features of dependent claims 8 and 18. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 8 and 18.

With respect to Applicants dependent claims 9-10 and 19-20, the Examiner contends that Figure 8 of Lin teaches Applicants' system and method being implemented across networks such as a local area network, wide area network, or the Internet. Figure 8, by Lin's own admission, illustrates "a schematic diagram of an exemplary computer system that may be used for practicing the embodiments of the invention discussed herein." Such a mere disclosure of a computer cannot teach or suggest the above-described method and system being implemented across networks such as a local area network, wide area network, or the Internet.

Hence, Applicants respectfully assert that the combination of Lin and Liu CANNOT teach or suggest many of the features of dependent claims 9-10 and 19-20. Therefore, Applicants respectfully assert that the Examiner improperly issued a 35 U.S.C. §103(a) rejection with respect to dependent claims 9-10 and 19-20.

**SUMMARY**

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicant's presently claimed invention, nor render them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

As this Appeal Brief has been timely filed within the set period of response, no fee for extension of time is required. However, the Commissioner is hereby authorized to charge any deficiencies in the fees provided, including extension of time, to Deposit Account No. 09-0441.

Respectfully submitted by  
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May 1, 2008

**Claims Appendix:**

**1. (Original)** A system to order a plurality of nodes associated with entities in a document, said system comprising:

- a. a node generator parsing said entities in said document and creating a plurality of nodes that represent said entities and relationships that exists among said entities;
- b. a node grouper grouping said created plurality of nodes into a plurality of regions, each of said regions defining an area within a n-dimensional space, wherein n is greater than one; and
- c. a formatter for formatting said plurality of regions for storage.

**2. (Original)** A system as per claim 1, wherein said regions are node descendant regions.

**3. (Original)** A system as per claim 1, wherein said formatted regions are stored in one or more pages.

**4. (Original)** A system as per claim 1, wherein said set of regions are grouped by said node grouper based upon anticipated access pattern and usage.

**5. (Original)** A system as per claim 1, wherein said node grouper additionally monitors insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region.

**6. (Original)** A system as per claim 1, wherein said document is a mark-up language based document.

7. **(Original)** A system as per claim 6, wherein said mark-up language based document is an XML document.
8. **(Original)** A system as per claim 1, wherein said system associates post order traversal numbers with said plurality of nodes, said post order traversal numbers identifying containment relationships among nodes.
9. **(Original)** A system as per claim 1, wherein said system is implemented across networks.
10. **(Original)** A system as per claim 9, wherein said network is any of the following: local area network, wide area network, or the Internet.
11. **(Original)** A method for ordering a plurality of nodes associated with entities in a document, said method comprising:
- a. parsing said entities in said document and creating a plurality of nodes that represent said entities and relationships that exists among said entities;
  - b. grouping said created plurality of nodes into a plurality of regions, each of said regions defining an area within a n-dimensional space, wherein n is greater than one; and
  - c. formatting said plurality of regions for storage.
12. **(Original)** A method as per claim 11, wherein said regions are node descendant regions.
13. **(Original)** A method as per claim 11, wherein said formatted regions are stored in one or more pages.



**14. (Original)** A method as per claim 11, wherein said set of regions are grouped based upon anticipated access pattern and usage.

**15. (Original)** A method as per claim 11, wherein said method comprises the additional step of monitoring the insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region.

**16. (Original)** A method as per claim 11, wherein said document is a mark-up language based document.

**17. (Original)** A method as per claim 16, wherein said mark-up language based document is an XML document.

**18. (Original)** A method as per claim 11, wherein said system associates post order traversal numbers with said plurality of nodes, said post order traversal numbers identifying containment relationships among nodes.

**19. (Original)** A method as per claim 11, wherein said method is implemented across networks.

**20. (Original)** A method as per claim 19, wherein said network is any of the following: local area network, wide area network, or the Internet.

**21. (Cancelled)** A method for ordering nodes in a document via isolated ordered regions, said method comprising the steps of:

- a. parsing said document;

- b. creating nodes representing entities of said document and relationships that exists among said entities;
  - c. mapping said created nodes based upon a level and step associated with each of said nodes;
  - d. grouping said mapped nodes into a plurality of regions, said grouping identifying, for each of said regions, at least the following parameters: a minimum step, a minimum level, a maximum step, a maximum level, said parameters giving a region its dimension and order within said document;
  - e. ordering said regions based upon ascending minimum step and minimum level;
  - f. calculating step range associated with each of said regions; and
  - g. reordering said regions based upon ascending step range, minimum level, and minimum step, said reordering reflecting parent-child relationships among said nodes.
- 22. (Cancelled)** method as per claim 21, wherein said regions are node descendant regions.
- 23. (Cancelled)** A method as per claim 21, wherein said method is implemented across networks.
- 24. (Cancelled)** A method as per claim 23, wherein said network is any of the following: local area network, wide area network, or the Internet.
- 25. (Cancelled)** A method as per claim 21, wherein said document is a mark-up language based document.

**26. (Cancelled)** A method as per claim 25, wherein said mark-up language based document is an XML document.

**27. (Cancelled)** A method as per claim 21, wherein said method comprises the additional step of monitoring the insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region.

**28. (Cancelled)** A method as per claim 21, wherein said set of regions are grouped by said node grouper based upon anticipated access pattern and usage.

**29. (Cancelled)** An article of manufacture comprising a computer usable medium having computer readable program code embodied therein which orders nodes in a document via isolated ordered regions, said medium comprising:

- a. computer readable program code parsing said document;
- b. computer readable program code creating nodes representing entities of said document and relationships that exists among said entities;
- c. computer readable program code mapping said created nodes based upon a level and step associated with each of said nodes;
- d. computer readable program code grouping said mapped nodes into a plurality of regions, said grouping identifying, for each of said regions, at least the following parameters: a minimum step, a minimum level, a maximum step, a maximum level, said parameters giving a region its dimension and order within said document;

- e. computer readable program code ordering said regions based upon ascending minimum step and minimum level;
  - f. computer readable program code calculating step range associated with each of said regions; and
  - g. computer readable program code reordering said regions based upon ascending step range, minimum level, and minimum step, said reordering reflecting parent-child relationships among said nodes.
- 30. (Cancelled)** An article of manufacture as per claim 29, wherein said medium further comprises computer readable program code monitoring the insertion or deletion of nodes in each of said regions, whereby modifications to nodes within a particular region affects only said nodes in said particular region, said modifications causing nesting levels to be created based of a parent level region.
- 31. (Cancelled)** An article of manufacture as per claim 29, wherein said document is a mark-up language based document.
- 32. (Cancelled)** An article of manufacture as per claim 31, wherein said mark-up language based document is an XML document.
- 33. (Cancelled)** An article of manufacture as per claim 29, wherein said regions are node descendant regions.

**Evidence Appendix**

None

**Related Proceedings Appendix**

None